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29.

The General Rise of Prices in Egypt.

by Mr. Craig

Compare Prof. Nicholson's theory of "marginal" commodities, which the movement of the exchanges just renders it profitable to import or export as the case may be.

As I have said, these points do not affect the general soundness of your paper, and I must thank you for the great pleasure which the reading of it has given me.

Yours sincerely,

J. B. Clark

A.H.

PLEASE STATE SUBJECT MATTER ON ENVELOPE.

Telephone:—Victoria 9860.
Telegrams:—"Foodkeeper, Parl, London."

Address reply to:—
THE SECRETARY,
MINISTRY OF FOOD,
and quote _____

MINISTRY OF FOOD,
PALACE CHAMBERS,
WESTMINSTER,
LONDON,
S.W. 1.

9th April 1919.

Mr.Craig contd.

Page 27. The amount of the gold reserve is of ~~official~~ financial importance, but it does not affect the amount of the currency as such at any moment. It should certainly not be counted twice over, as gold and as notes, but on the other hand I do not see why it should be deducted from the note circulation.

Page 33. As I said, I do not know the actual economic circumstances of Egypt well enough to criticise ~~or recommend~~ your argument as to the cause of the variation in cotton prices in 1914, but to the general reader it appears ~~are~~ rather like straining the Quantity Theory too far, unless it can be shown that the circumstances of the world market for cotton (demand, ~~change~~ tonnage etc.) cannot account for the effects.

Page 40.Paragraph 37. This is Mill's abstract theory as to how the exchanges are redressed by the passage of gold. In practise, however, it seldom works out except in extreme cases.

of token money at its real value.

Page 6. Prima facie, the object of the institution of a paper currency is to economise gold, and unless the increase in circulation is such that the reserve held for the notes exceeds the previous reserve plus the gold formerly in circulation, it can hardly be classed as a cause of an increased requirement of gold.

Page 8. I do not think ~~our~~ the con-current import and export of gold is very remarkable, or ~~un~~necessarily due to lack of organisation within the country. It is rather due to a lack of organisation between the various countries with which it engages in trade. ~~Its increase~~ This may not apply to Egypt if, as you say, its foreign trade is practically confined to the British Empire.

Page 26. I think the statement regarding causes of changes in the general price level other than the quantity of money as such is a little strong; compare ~~of~~ the effect of the general increase of production, for example 1870 - 1896, neutralising the effect of increased supplies of gold. For a particular country also we have to consider the effect of the general world level of prices, especially for a country producing "staple articles".

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9th April 1919.

Dear Mr.Craig,

I have read your paper with considerable interest and I believe it is both sound and exceedingly ingenious in its concrete application of the Quantity Theory of Money. I do not know the economic data for Egypt sufficiently well to criticise the applications and I have no books of reference beside me. The only points I have to mention are minor ones of general theory not affecting the general force of the paper.

Page 2. The term " favourable balance of trade" in its historical significance was exclusive of the precious metals, the whole point being that the balance was presumably made up by the import of these.

I agree ~~with~~ that the import of token money, presumably ~~manufactured~~ minted abroad for the Egyptian Government, should be reckoned at its true value. But the export of foreign token coins, brought by visitors, should surely be taken at its face value (compare paragraph 9), so it is hardly accurate to speak of "net "import"

The General Rise of Prices in Egypt.

I - Introductory.

1) In a preceeding note the writer has discussed the rise in the price of cereals, particularly wheat, in Egypt, and has come to certain conclusions as to some of the causes governing this rise. Subsequent reflexion has, however, shown that these conclusions cannot be put forward in explanation of the general rise of prices that has taken place in Egypt since the outbreak of the war, and particularly during the past twelve months. A general phenomenon of this sort must be due to far-reaching and general causes, which it is the object of this note to investigate. It is believed that a very considerable factor in causing the increase is to be found in the system of currency adopted since the outbreak of war, and if this is accepted as proved, that the Government has the remedy in its own hands, and while perhaps not in a position to reduce the rise, can at least, by suitable measures, prevent it from increasing to the extent which would otherwise prevail.

2). The broad outlines of the economic situation of Egypt are that she normally grows practically all her own foodstuffs, except two months' supply of wheaten flour, certain articles of luxury rather than necessity, and a considerable amount of animal food. On the other hand, practiccaly all manufactured articles are imported. Of the foodstuffs grown here, three-quarters never reach the market, being retained for consumption by the producers.

8a.

As to exports, over nine tenths consist of either cotton or cotton produce. Very little food is exported in a normal year.

In the last year before the war, 1913, the value of the export and import trade was evaluated by the Customs Administration as follows:-

Exports L.Eg.	33,198,000	(including nett export of gold)
Imports "	27,902,000	(including nett import of token money, at its true value.)

There was thus an excess of exports over imports -so-called favourable balance of trade - amounting to 5.2 millions. It will be shown later, however,[x] that several items have been omitted from the value of the exports, and that several important invisible exports and imports are omitted, other than the receipts for the payment of interest on public and private indebtedness to foriegn countries. It is probable that the true balance of trade more nearly approaches 8.5 millions of Egyptian pounds, which are offset by the 4.5 millions due annually on the public debt and tribute, and some 4 millions, due for private debt, which, however, can be estimated only approximately. In general, the true export trade just pays for the true import trade.

[x] See 32

II - Factors which determine the general level of prices.

(3) - Since the whole of what follows is based on the modern theory of money, called the quantity theory, now generally accepted by economists, it is convenient to give here a resumé of these factors which determine the general level of prices. While doing so, the opportunity will be taken to quote such statistics as are available concerning these factors in Egypt. They are:

(a) the amount of money circulating in the country;

(b) its velocity of circulation;

(c) The cheque currency;

(d) its velocity of circulation; and

(e) the volume of trade.

(4) - The circulating money of the country consists of :

(a) primary money; and

(b) fiduciary money.

Primary money consists of "a commodity, any given unit of which has just as much value in some other use as it has in monetary use." [x] Gold coins in a country with a gold standard, brass wire amongst the tribes of the Sudan, cartridges or salt in Abyssinia are examples of primary money.

Fiduciary money, on the other hand, is money whose general acceptance depends on the confidence of the acceptor that he can, at any time, either exchange it for primary money or use it for the discharge of debts or in payment of goods. Its value depends in general on a guarantee either by a

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[x] Irving Fisher, Why the Dollar is shrinking, (New York, 1915), p. 31.

government or by a bank, and may vary with the amount of confidence placed in the guarantee.

The sole primary money of Egypt consists of gold coin, and the fiduciary money consists of silver , nickel and bronze coins, and of paper money in the form of banknotes, issued by the National Bank of Egypt. In practice, the current gold coin and standard of value is the British sovereign, and the par rate of conversion between the Egyptian pound and the sovereign is defined by law to be such that one sovereign is equivalent to 0.975 of an Egyptian pound.

Shortly after the outbreak of war, the National Bank was freed from the obligation to pay primary money for its notes, on demand, but the measure is intended to be purely temporary.

(5) - The Primary money in Egypt cannot be determined with any accuracy. We have statistics of the amount of legal gold coin imported and exported annually since 1885, so far as declared to the Customs and Post Office, but since the gold currency of the country consists almost exclusively of foreign coins there is no need for individuals, taking these abroad, to exchange them for other gold, and leave them in the country. There may therefore and certainly does exist an invisible import and export of gold coins to and from Egypt. Full details of the annual export and import of the visible stream of gold coin may be found in the Annuaire Statistique for 1914, p. 521. From the figures there given, it appears that the total visible import of gold has been £.135,089.000 and the export of gold has been £.90,134,000.

From these figures, it would appear that £.45,000.000 in all, or an annual average amount of £.1,550,000 has remained in the country since 1885, a phenomenon which has excited a considerable amount of comment in economic and financial circles, especially when taken in conjunction with a similar disappearance of gold into India. It has genrally been explained as being due to hoarding, but in the writer's opinion several essential facts have been too hastily neglected when adopting this explanation.

(a) Gold coins to an unknown amount are melted down to make jewelry. Being equivalent, in the case of gold, to hoarding, this operation need not be further dwelt on, but it should be remarked that since there is no mint in Egypt, the operation is irreversible, and such coins are definitely withdrawn from the currency, and can reappear in it only be export, recoinage abroad, and subsequent import. A similar remark applies to gold originally introduced in jewelry or other articles of art, and to the gold annually mined in Egypt. Since the provenance of exported bullion cannot be determined, no useful purpose would be served by comparing the exports with the imports especially since there exists an invisible flow of gold, in this form and as jewelry, both into and out of the country.

(b) In thirty years there has undoubtedly taken place a certain increase in the trade of the country, demanding a larger stock of gold to do the work, but how much can hardly be estimated.

(c) The monetary boundaries of Egypt have been extended, so that they now include the Sudan into which a certain amount of gold has passed without record.

(d) The foundation of the National Bank, and particularly the institution of paper money, have demanded a certain amount of gold, although perhaps this case may be treated as a particular examples of (b).

(e) A much larger sum is now maintained in the Treasury than twenty years ago. In 1913, the cash in banks, the Treasury and Caisee de la Dette was 6.1 millions against 3.4 millions in 1891, and although all of this was not in gold, it is extremely probable that a large proportion of the increased balance took this form.

(f) There are several invisible streams of gold whose general resultant is outwards. Egypt is the scene of three annual periodic movements of migration. Towards the end of the year there begins the annual influx of winter visitors who stay a few months and leave between February and May. Overlapping their departure there is the annual efflux of residents, to escape the summer heat of Egypt, after which they return in Autumn. Thirdly, there is the pilgrimage which takes place at a movable date. The number involved in these three migrations amounted to over 150,000, in 1913. From a monetary point of view, all three movements possess a similar characteristic namely that the average amount of money - chiefly gold - carried out of the country by each passenger exceeds that brought in. For further details reference may be made to a paper by Dr. I.G. Levi. x

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x I.G. Levi, Le Tourisme et la Villegiature en Egypte; L'Egypte contemporaine, 1912, III,

The accepted opinion that Egypt is a vast sink for gold requires, therefore, considerable modification. That there is some hoarding cannot be gainsaid, but that it exists to anything like the extent generally believed amongst foreign economists cannot be maintained. That important hoarding exists is rendered still more improbable by the ascertained relatively heavy indebtedness of the cultivators as a class.

From the present point of view, the conclusion is that to form any reliable estimate of the amount of primary money, i.e. gold in circulation in Egypt, at a given time, is extremely difficult.

(6) - In one instance, we are able to investigate the amount of gold required to transact a particular piece of business, namely that of moving the cotton crop from the field to the port. The cotton season begins nominally on September 1, although parcels of early crop arrive some weeks previously. The rate of arrival at Alexandria rises very rapidly and the maximum is reached from nine to twelve weeks after the start of the season, or say, at some time in November. Thereafter it tails off, somewhat rapidly at first, but more slowly later, until just before the new season begins, the weekly arrivals have fallen to a few thousand qantars. To pay for the movement of this annual flood of cotton - for in character the movement is not unlike that of the Nile flood - there is normally a corresponding flow of gold into the country, with a maximum of some three millions of pounds in October, i.e. in anticipation of the maximum flow of cotton. After that the import of gold falls away, until in summer it reaches only a few tens of thousands of pounds per month. Having done its work, the gold begins to flow out again, at a rather more uniform rate than it entered, and with a

maximum in January or February as a rule. The average duration of stay of the gold in the country may be shown to be almost exactly 4 months. It may also be shown that if the crop each year is moved by the gold imported then the amount of the latter averages 0.4. of the value of the cotton crop. Since as will be shown in 17 there is reason to believe that the whole crop changes hands in Egypt, on the basis of a cash transaction, twice over, it follows that the gold used for the financing of the crop changes hands five times.

It is worthy of remark in passing that the inward and outward flows of gold exist side by side, a phenomenon which indicates that the exchange market in Egypt is still susceptible of a considerable improvement in organisation. In December, 1909, for example, there would have been a considerable economy to the country, could the individuals or banks who imported 1.26 millions have been brought into touch with those who exported close on one and a half millions, and this is not an exceptional case, although the actual amounts are seldom so nearly equal. x

(7) Though the accurate estimation of the primary money is difficult, by making use of a law, relating to the partition of money between different countries, enunicated over one hundred years ago by Ricardo, we may make an approximate estimate of the total amount of gold in circulation in Egypt. Ricardo's Law states that the monetary metals "are distributed in such proportions amongst the different countries of the world as to accomodate themselves to the natural traffic which would take place if

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x But the phenomenon of a country being at the same time an importer of bullion from one region and an exporter to another region is not without parallel (v Bastable, Theory of International Trade, London, 1903, p. 95).

no such metals existed." He is referring in this passage to international trade, but his law may be applied, by analogous reasoning to his, to the internal trade of a country. Knowing then the volume of the trade in cotton, the gold required to finance it, its velocity of circulation and the total volume of trade of the country, we may infer the total amount of gold circulating in the country. Several assumptions underlie the use of a simple proportionality, so that the result cannot be considered otherwise than approximate. The estimated volume of trade in 1913 may be measured by £227,000,000 of which cotton accounted for £67,600,000. On the hypothesis as to the finance of the cotton crop, (see 6), the amount of gold required for this volume of cotton trade was £13,500,000. This amount of money changed hands 5 times in four months i.e. at the rate of 15 times in the year.

It is probable, however, that the velocity of circulation, i.e. the number of times that the money changed hands during the year, is the same for the ordinary commerce of the country as for the trade in cotton, and some reduction of this figure 15 may have to be made, and here we can only make an estimate of the reduction. If we make no reduction, the residual gold in circulation is 10.6[x] millions; if we reduce the velocity of circulation to 12, the figures for gold rise to 13.2 millions; if we reduce the velocity to half, the figure is 21.3 millions. If on the other hand, the velocity of circulation of the residual gold exceeds 15, a corresponding reduction of the quantity must be made.

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x i.e. $\frac{227,000,000 - 67,600,000}{15}$

The writer is disposed to think, all things considered, that the best hypothesis is that the cotton crop is financed almost entirely by the annually imported gold, assisted by a constant reservoir in the country, and that the same velocity of circulation applies to all gold, and not only to that used for cotton transactions. In this case the reservoir of gold in Egypt in 1913 may be taken at 10.6 millions. (See infra 27, where more details are given on this matter and the figure 8.5 millions is obtained for July, 1914).

For 1891, M. Ottomar Haupt arrived at an estimate of 27 millions of gold.

For 1905 the Director of the Mint (U.S.A.) gave a figure of 17 millions, including gold in the banks.

For 1901, M. de Beaupuis obtained a figure of 8 millions sterling.

For 1908, MM. Arminjon and Michel considered that 33 to 41 millions of gold was a reasonable estimate, but that this inculded money lost, melted down or hoarded. x

(8) Although we can only approximately find the amount of primary money in circulation in Egypt previous to the war, we are now able to say that the present circulation is practically nil.

(9) The amount of fiduciary money in circulation is known much more accurately. This currency consists of the metal token money of the Government (with a small

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x For full information concerning currency, and credit instruments in Egypt, reference may be made to the book by MM. Arminjon and Michel, La Circulation, le Credit et leurs Instruments en Egypte, Paris, 1908.

amount of foreign token money at the ports), and of the bank notes issued by the National Bank. During the 29 years from 1885 to 1913, foreign token money was exported, on balance, to the amount of 1.1 millions of Egyptian pounds. This, in all probability, represents the balance of small change spent by visitors to the ports, over that taken away by them, and the annual balance should be added to the exports from the country in fidning the balance of trade (See 32.)

(10) - Details as to the movement of token money of the Egyptian Government will be found in the Annuaire Statistique for 1914, p. 521. The table there given shows that the token money has increased by 4.2 millions, on balance, since 1886. (Incidently, it should be noticed that this token money ought not to appear in the balance of trade at its face value, but at its actual cost, including insurance and freight.) The issue of the money from the Treasurery is, as a rule, considerably below the total that has been imported, since a reserve is kept in hand to meet sudden demands, which are generally due to unexpected development in the cotton crop trade. The issue of token currency shows a distinct annual periodicity, but the whole amount issued at the commencement of a cotton season seldom returns in full at the end of it. A balance remains in circulation.

(11) - The third form of fiduciary money consists of the banknotes issued by the National Bank, since 1899. Their issue rose from an average of £9,000 in May,

1899 to one of £2,260,000 in December, 1913. It has a certain annual periodicity, which, however, is associated rather with the cereal harvest than with the cotton crop; in fact, in recent years, previous to the war, the minimum issue of the year has generally occured in Autumn, or just at the time when a maximum activity might be expected, owing to cotton transactions.

Until the outbreak of war, these notes have always been represented, as to at least half their value, by deposits of gold in the National Bank in Egypt. They are now covered, partly by gold deposited in the National Bank in Egypt or in London, and partly by approved securities deposited in Egypt or in London. It is clear that the gold reserve and the notes issued against it should not both appear in the total of circulating medium. Their issue since the beginning of 1913 is exhibited in the following table.

Table I. - Bank notes issued at the end of each month and gold holding, in thousands of Egyptian pounds.

	1913			1914			1915			1916		
	Notes	Gold		Notes	Gold		Notes	Gold		Notes	Gold	
		In Egypt	In London		In Egypt	In London		In Egypt	In London		In Egypt	In London.
January...	2.900	1.481	-	2.500	1.250	-	8.250	3.731	1.151	12.650	3.803	3.456
February..	2.900	1.481	-	2.600	1.300	-	8.100	3.482	2.550	12.400	3.601	3.408
March.....	2.800	1.402	-	2.600	1.300	-	7.900	3.388	2.067	12.400	3.460	3.554
April.....	2.600	1.300	-	2.500	1.250	-	7.750	3.287	2.023	12.100	3.405	3.481
May.....	2.400	1.200	-	2.400	1.200	-	7.750	3.273	1.160	11.700	3.423	3.232
June.....	2.400	1.200	-	2.400	1.200	-	7.000	3.399	283	11.000	3.347	3.135
July.....	2.100	1.050	-	2.200	1.100	-	6.450	3.474	-	10.800	3.304	3.100
August....	2.000	1.000	-	3.500	1.799	-	6.700	3.627	97	11.200	3.064	3.203
September.	2.000	1.000	-	4.250	2.501	-	9.000	3.723	1.545	13.300	3.097	3.203
October...	2.600	1.300	-	5.360	3.110	-	11.050	3.885	3.237	19.100	2.933	3.203
November..	2.600	1.300	-	7.150	3.394	244	10.550	3.945	2.189	22.650	2.971	3.203
December..	2.700	1.350	-	8.250	3.698	634	11.550	3.970	3.164	21.200	2.728	3.203

Notes issued to the banking department of the National Bank are considered as in circulation.

The increase of the currency due to all these forms of money will be considered later, (v. § 27) but it is not out of place to remark that there is now periodicity in the issue of notes, that corresponds with the cotton season. This is but as might be expected, seeing that they have taken the place of gold in financing the crop.

(12) - A factor of equal importance to the amount of money in a country is the velocity of circulation of the money, or the number of times it changes hands in the course of a year.

The velocity of circulation varies according to the value of the coin, or from another point of view, with the personal habits of the spender.

For a discussion of this point reference may be made to Fisher (L.C., p. 93).

To obtain any useful measure of this important factor is therefore extremely difficult, and the writer knows of no other attempt to ascertain its value for Egypt, except that made in 7 above. What is important is that the velocity of money is not affected by the amount of it. (Fisher, L.C., p.141).

(13)- After the money, as a factor affecting price, comes the use of credit instruments, such as cheques. It is admitted by the principal writers on monetary theory that the giving and accepting of a cheque for goods or in payment of a debt is equivalent to the exchange of money for the same purpose. To this extent cheques are equivalent to money, and in consideration of the volume of financial transactions the volume of cheque transactions must be forgiven. In the United States cash

transaction form less than one-ninth of those settled by cheque or similar credit instrument. In general the velocity of circulation of a cheque is unity, that is, it changes hands, in exchange for goods, once in its career. Any subsequent exchange between banks is merely a matter of accounting.

A fundamental characteristic of this credit circulation is that in normal circumstances and over short intervals of time, it bears a nearly fixed ratio to the total circulation of money. The ratio cannot remain quite fixed, since credit circulation tends to increase faster than cash circulation, but the rate of increase is slow, and as remarked above, may be neglected over short intervals. It is doubtful, however, how far this fact holds over dislocations of credit such as occured in August, 1914.

(14)- Our information as to cheque circulation in Egypt is meagre, but some of it will prove useful in the sequel. The total number of blank cheques issued to local customers by local banks was 429,707 in 1912 and 483,942 in 1913, but we have no information as to their average amount.

In January, 1915, the Statistical Department made an enquiry as to the change in cheque payments due to the war. The five months August to December of 1914 were compared with the same months for the preceding year. The following were the results in brief:-

(a) Twenty banks and branches, including the principal banks, replied in greater or less detail.

(b) For ten of them who gave the amounts, the total involved in cheque transactions fell from £2,272,000 in 1913 to £610,000 in 1914, or by 73 per cent.

(c) For four who gave actual numbers, the number fell from 8,890 to 3,301 or by 63 per cent.

(d) Fifteen banks gave the percentage fall in amounts which averaged 73 per cent, and twelve banks gave the percentage fall in numbers, which averaged 53 per cent.

It is perhaps not an extravagent estimate to consider that the total cheque transactions of the five months August to December, 1913 amounted to 4.5 millions. Basing on this, and with certain reasonable hypothesis, the conclusion has been reached that the gold in circulation at the end of July, 1914 was approximately 6.5 millions. The figure obtained in 7 was 10.6 millions, as a general average, and that of 27 gives 8.5 millions for July, 1914. While these figures differ considerably inter se, they agree in giving a comparitively small total for the gold in circulation in the country.

(15)- The last factor which influences the general level of prices is the volume of trade. This is a somewhat vague magnitude whose want of definiteness corresponds to the vagueness of the term general level of prices, and yet both convey a general impression to the mind. No one would deny that if 10 per cent more of everything had been sold in one year than in a former, at the same prices, then the volume of trade would be 10 per cent greater in the Second year. Similarly, if all quantities had remained the same, but prices had increased by 5 per cent it would be conceded that the general level of prices was 5 per cent higher. The difficulty arises when some quantities change by more than others, while individual prices also change differently.

In what follows we shall not require absolute measures of the volume of trade, but only relative measures, and we shall define the volume of trade with reference to 1913. The total monetary transactions of 1913 may be obtained by muliplying each quantity of goods sold by the price per unit at which the sale took place, and summing all such individual transactions. If now the prices are carried forward to 1914, and the total monetary transactions obtained on the supposition that the quantities sold are those of 1914, but the prices are those of 1913, we get a measure of the trade of 1914, which does not depend on the change of prices. We may then compare this with the corresponding figure for 1913, and arrive at a comparative value of the trade of 1914 in terms of that of 1913. Calculating now the actual monetary transactions of 1914 from the actual quantities and actual prices, we get the trade as dependent on both changed quantities and changed prices. The ratio of the trade at the actual prices to that at the fixed prices will give a measure of the general level of prices in 1914 as compared with 1913. This is the method adopted in what follows:-

(16) - The monetary value of the principal cereal crops of the four years 1913-6 are as follows:-

1913	26.3 million pounds
1914	22.7 million pounds
1915	32.6 million pounds
1916	38.2 million pounds

It has to be remembered, however, that only one quarter of these crops forms the object of monetary transactions, since the remaining three-quarters are retained by the

producers, for their own consumption. Secondly, we do not know how many times a given ardeb of wheat, say, changes hands, but we can form an estimate, and provided the estimate is reasonably near the truth, and the same method is used each year, the resulting figures will be comparable. It is es imated then that the bread-stuffs, wheat, maize amd millet, changes hands as follows:-

Cultivator to local merchant;

Local merchant to wholesale dealer;

Wholesale dealer to miller;

Miller to baker;

Baker to consumer;

or five times in all. In many cases, the local merchant is himself the wholesale dealer, when there are only four transactions, and in many other cases the wholesale merchant sells to a retainer who sells direct to the consumer - again four transactions. The average price in all this may be taken as the price at which the wholesale dealer buys, since allowance will be made later for the services of the miller and baker in grinding the corn and baking the bread. In the case of beans, lentils, fruit, vegetables and other crops than the bread-stuffs, it is estimated that the average chain is - Cultivator - local merchant - wholesale dealer - retailer - consumer, or four changes in all. In many cases, particularly near large towns, the cultivator sells direct to the consumer. As a general average therefore, 4.5. for bread-stuffs and 3 for other crops may be taken, or for all crops, except cotton, taken together, and with due allowance for the relative importance of crops of bread-stuffs and others, simply four changes as a general average.

(17) As to cotton, it is considered that, in general, the process of marketing is carried out in two stages. The cultivator sells to a provincial merchant who in turn sells to an exporter. Occasionally the cultivator sells direct to the exporter; occasionally he sells to a small buyer who sells to a large merchant. The factor two will be adopted therefore for cotton and cotton seed.

(18) Live stock is frequently sold to a wholesale merchant who resells to the wholesale butcher. The latter sells the meat to the retail butcher who sells to the consumer. Round large towns the wholesale merchant frequently disappears from the chain. On the other hand a considerable proportion of the stock is sold not for slaughter and changes hands once only. Of the frequency of this we have no means of judging, and a pure guess must be made. Finally, it should be noted that as the value of beerseem, tibn etc. is already included in the value of crops, it must not be included again in the value of the livestock that consume these fodder crops, but on the other hand the sale of milk, butter, cheese and of skins and hides must not be overlooked. Again only a reasoned guess can be hazarded for the value of these commodities. The general factor 2 will be used for all livestock.

(19) There remains the consideration of the date crop which is considered to change hands thrice. The number of proprietors will their families amounts to about 3 millions or one quarter of the population. The money involved applies therefore to only three quarters of the crop, Combining this with the number of times the balance changes hands, we get a factor 2 1/4 for the whole crop, or nearly enough 2.

(20- The import trade has now to be considered. In a large number of cases the importer is himself the actual retailer to the consumer, but in perhaps as many cases the importer is a wholesale merchant from whom the retailer buys to resell to the consumer. Thus the factor 1.5 may be taken for the import trade, the value of which is taken at the customs valuation, for reasons that will be explained in next paragraph.

(21) There remains the questions of services which must be considered, since they are given in return for a monetary payment. With regard to services, it is convenient to include not only those of the professions and of officials, labour of workmen, domestic servants, public servants, such as cabmen, and the like, but also those of wholesale and retail dealers, whose profits (which may be looked on as the payment for their services) have not been included in the values adopted above. Secondly, it must not be overlooked that the Government itself is the largest seller of services in the country, and that it gets its return in the form of taxes, payments for posts, telegraphs, railways, dues for shipping, customs and so on, none of which appear in the commodity values above. It is for this reason that we need not make any allowance over and above the c.i.f. value of exports. Owing to their peculiarly personal nature, services cannot be passed from hand to hand, but must be paid for once only. The factor here is therefore unity.

(22)- It remains now to combine these into one expression for the volume of trade for each year, which we proceed to do.

Table II.

Volume of trade in Egypt.

Value of	Actual Transactions for each year. x				Comparative colume of trade on basis of 1913 prices. x		
	1913	1914	1915	1916	1914	1915	1916
Wheat crop.....	9.7	8.2	10.9	12.5	8.4	10.0	9.3
Maize and millet crop	12.9	12.9	16.6	21.5	15.3	17.2	15.6
Barley crop.....	2.1	1.4	2.6	2.7	1.9	2.4	2.3
Rice "	1.6	0.2	2.5	1.5	0.3	2.6	1.1
Other crops.....	14.9	13.1	18.1	20.9	14.7	17.9	15.9
Total...	41.2	35.8	50.7	59.1	40.6	50.1	44.2
One quarter X 4 times	41.2	35.8	50.7	59.1	40.6	50.1	44.2
Date crop X 2.....	6.0	6.7	6.4	7.6	6.0	6.0	6.0
Cotton " X 2.....	67.6	37.4	43.6	84.4	57.6	42.2	44.6
Livestock X 2.....	8.0	7.7	7.4	9.1	7.7	8.0	7.8
Fish, eggs etc. X 3 .	3.0	3.0	3.1	4.0	3.0	3.0	3.0
Imports X 1.5.....	41.9	32.6	29.0	46.3	32.6	24.0	27.4
Total value Commodities...	167.7	123.2	140.2	210.5	147.5	133.3	133.0
Private services.....	42.0	36.5	38.5	47.8	42.0	42.0	42.0
Public "	17.2	15.5	18.1	19.6	16.0	17.8	17.3
Total value Services.	59.2	52.0	56.6	67.4	58.0	59.8	59.3
GRAND TOTAL.....	226.9	175.2	196.8	277.9	205.5	193.1	192.3

(x) Figures in millions of Egyptian pounds.

It would unduly length this note to explain in full how all these figure have been arrived at. The important point is that the same method has been followed throughout each item. The grand totals are therefore mutually comparable, and as comparison is the chief object, this has been secured. It may be mentioned, however, as showing the small effect which changes in the mode of computation have on the final comparative figures, that a preliminary calculation, in which three was adopted as the factor for crops; dates; live-stock and private services were all treated differently; and public services were omitted, gave comparative results nowhere 2 per cent different from those obtained in the next paragraph, although the absolute values found necessarily differed considerably from those above.

(23) The comparative figures, based on the prices of 1913 are:-

226.9; 205.5; 193.1; and 192.3 for the four years; or expressed as percentages of that for 1913.

100; 91; 85; 85;

The fall in the volume of trade is due almost entirely to reduction in the weight of the cotton crop, and to diminution in the volume of imports, and it would have been worse had not the decrease of the area under cotton resulted in increased of that under other crops. This drcrease in the volume of trade by as much as 15 per cent is of capital importance in the following discussion, and when the reduced cotton crops and imports are considered, it cannot be denied that there has been such a decrease, even of objectors may wish to minimise its amount.

(24) Since the comparative figures for volume of trade have been obtained on the basis of unchanged prices, the increase or decrease of the actual volume of monetary transactions as compared with those, can arise only from change in the general level of prices. Comparing then the two series of grand totals, and taking that for 1913 as 100 we get the following table:-

Table III.

Year	1913	1914	1915	1916
Actual transactions.....	226.9	175.2	196.8	277.9
Comparative volume of trade.....	226.9	205.5	193.1	192.3
General level of prices.....	100	85	102	145
Share due to other crops and dates....	21	21	30	35
" " " cotton.....	30	18	23	44
" " " live-stock.....	3.5	3.8	3.8	4.7
" " " imports.....	18	16	15	24
" " " services.....	26	25	29	35

This brings out how the general level of prices has been effected by the steady rise in the price of cereals and of cotton, and more recently of imports.

Further the table makes clear that the rise in the price of crops from 1913 to 1916 has amounted to 67 per cent; in cotton, to 47 per cent; in live-stock and animal products, to nearly 33 per cent; in imports to 33 per cent; and in "services" to 35 per cent, or since about half of those here considered render their services against the fixed salaries, the profits, which represent to pay of the other half, must have increased by 70 per cent.

(25) This long explanation of the factors which are interconnected in the monetary theory of business has been considered necessary, since parts of it may not be familiar to some readers and it is desired to make every point clear. The ground is now prepared for discussing the quantity theory of money and its application to the level of prices in Egypt. Put briefly, the quantity theory is so simple as to appear a truism, and one set of objections to it is based on this fact, The theory simply states that the sum of all the money paid for the goods that change hands in a given interval of time and for services amounts to the total of all the bills for these goods, in other words, that the quantity of money in a country, multiplied by the average number of times each coin is exchanged for goods in the given time, is equivalent to the total monetary value of the goods that have changed hands. This total value is obtained by multiplying the quantity of each commodity exchanged by its price. On the one side of the equation allowance must be made for payment by credit instruments and also by actual credit. The statement of this thoery admits of a simple expression by an algebraic equation.

The Creek letter Σ is used to signify "the sum of all the particular transactions in the given time" which for our purposes will be the calendar year.

m represents the number of monetary units in a given piece of money, and

n the number of times it changes hands in exchange for goods, in the year.

m′ represents the number of units in a given credit instrument, such as a cheque, and

n′ the number of times it changes hands in exchange for goods in the year. In general this is

once only, but for symmetry the symbol is preserved.

p is the price of a commodity in units of money per unit of the commodity.

q is the number of units of the commodity sold at price p.

The statement of the fundamental equation is then

$\Sigma\, m\, n + \Sigma\, m' n' = \Sigma\, p\, q.$

If now M represents the whole volume of money, including paper money, and N the average number of times it changes hands, and corresponding symbols are used for the credit money, and if P represents the general level of prices and Q the volume of trade, this equation may be simplified into $M\, N + M'\, N' = P\, Q.$

(26) This equation informs us that <u>for any given year</u> there exists a simple relation between the total volume of money, its velocity of circulation, the total credit currency and the general level of prices and total volume of trade. It tells us more than that, however, and this is just where the equation, like all the equations of mathematical physics, ceases to be a truism. It tells us that if five of the six quantities involved change from one year to another, then the change of the sixth is determined absolutely. Thus if the velocity of circulation of money, the credit currency, and volume of trade all remain unchanged, but the quantity of money in circulation changes, then, the level of prices must change in proportion. Or from another point of view, if the prices change, and the above quantities remain unchanged, the quantity of money in circulation

must change proportionally. The equation does not however, tell us which of the two is cause and which effect. To find that out, a second investigation is always necessary. But it may be pointed out that it is a priori extremely improbable that any general cause, which does not act throuhg the supply of money, should act on all commodities so as to produce a general rise of average prices. There is therefore a theoretical presumption that the general rise of prices cannot be the cause, but must be the effect, of the increase in the quantity of money, and this second investigation generally takes the form of finding which precedes the other in time. If it is found that the rise in prices lags somewhat behind the rise in the quantity of money in circulation, the inference is that the change in the latter is the cause of the change in the former. Or if it can be shewn that the quantity of money has been changed by causes external to the totality of transactions considered, it equally follows that the change of prices must be attributed to the forced change of currency. Thus if the balance of monetary transactions is upset through an absolute but avaricious monarch pouring into circulation a volume of money not required for trade the result is, necessarily and beyond any possibility of escape, a rise of prices.

This should be a footnote.

It is proposed now to apply this theory to present circumstances in Egypt. First it will be shewn that there is reason to believe that a considerable rise of the money in circulation has taken place, and that this

change of circulation is adequate to explain by far the greater part in the rise in prices. Secondly, a demonstration is submitted that the rise of circulation or inflation of the currency is due to causes external to the local trade of Egypt, and therefore that this inflation is the cause, not the effect, of the rise in the general price level.

(27) For the above purpose we must consider more carefully the amount of money in circulation. As already explained, it is practically impossible to find this amount with any precision, but starting from a given date with an unknown amount in circulation it is possible to find the changes month by month. The quantities to be taken into account are:-

(a) The banknotes in circulation, less the amount of gold held against them in Egypt, both of which are known from returns made by the National Bank;

(b) The token money in circulation, which is known from figures available in the Treasury;

(c) The gold in the banking department of the National Bank;

(d) The monthly exports and imports of gold, known from the Customs Returns; and

(e) The gold known to have been withdrawn from circulation to be melted down for ornaments, which is approximately known from returns supplied by the Assay Office.

The following table has been compiled from these data.

Table IV.

Circulation of Money in Egypt,

in millions of Egyptian pounds.

	1913	1914	1915	1916
January.....	13.11	12.23	12.84	17.86
February.....	12.00	12.00	13.04	17.97
March.....	11.29	11.18	13.02	18.09
April.....	10.06	10.60	12.83	17.87
May.....	9.33	9.69	12.94	17.46
June.....	8.37	8.66	11.83	16.46
July.....	6.98	8.06	11.11	16.11
August.....	6.97	9.42	11.07	16.16
September.....	10.60	9.35	13.33	18.20
October.....	15.49	10.15	15.49	24.10
November.....	15.24	11.85	15.11	27.90
December.....	13.61	12.81	16.45	26.60
Mean for the year.	10.25	10.50	13.25	19.65

During the months marked with a plus ( ), an unknown but constant quantity of gold, in addition to the amounts of money here shewn, was in circulation in Egypt.

Many considerations lead the writer to the conclusion that this unknown quantity was about 4.50 million up to July, 1914, but the result of declaring banknotes to be legal tender, but incovertible, was to drive this 4.5 millions out of circulation. The amounts given in the next table are therefore presumed to be approximately the absolute amounts of money issued at the various dates.

Table V.

Estimated total amount of money in circulation at the end of each month, in millions of pounds Egyptian.

	1913	1914	1915	1916
January.....	17.6	16.7	12.8	17.9
February.....	16.5	16.5	13.0	18.0
March.....	15.8	15.7	13.0	18.1
April.....	14.6	15.1	12.8	17.9
May.....	13.8	14.2	12.9	17.5
June.....	12.9	13.2	11.8	16.5
July.....	11.5	12.6	11.1	16.1
August.....	11.5	9.4	11.1	16.2
September.....	15.1	9.3	13.3	18.2
October.....	20.0	10.1	15.5	24.1
November.....	19.7	11.8	15.1	27.9
December.....	18.1	12.8	16.4	25.6
Mean for the year.....	15.6	13.1	13.2	19.5

It may be well here to emphasize the fact that this table depends on but one assumption. The figures given in Table IV have been obtained from data that have been published or may be obtained from the Treasury.

They involve no assumption whatsoever, and have not been manipulated or adjusted in any way. But since, at July 1914, the quantity of gold circulation was an unknown quantity, an unknown constant amount has to be added. After July 1914, this

unknown amount disappeared from circulation, and nothing has to be added to the numbers for months subsequent to that date. This is merely the statement of a well-ascertained fact. The only adjustment that has taken place in the pre-war portion of the second table has been that by a process, well-known to mathematicians, or if it is preferred, by a systematized trial and error, the most probable value of the unknown amount has been found to be about 4.5 millions and the second table is derived from the first by the addition of 4.5 to the figures of the first 19 months in the former table.[x] The chief point of this paragraph is that the business of the country is carried out, in normal circumstances, with a currency varying from 11 to 20 millions.

(28) We are now in a position to compare the average quantity of money circulating in each year, the volume of trade, and the general level of prices. It is assumed that the velocity of circulation remains unchanged, and the large drop in the cheque circulation, in the end of 1914, has been neglected for the present. Finally, it is considered that hoarding is either negligible, or, as is more probable, that it bears a fixed relation to the total quantity of money circulation, in which case its only effect is to alter in a constant ratio the velocity of circulation. The following are the data :-

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x The gold known to be in circulation, at July, 1914, was 3.99 millions. Adding 4.5 million to this, we obtain 8.5 millions as the estimated amount of gold then circulating in the country. See 14.

	1913	1914	1915	1916
(a) Volume of Trade.....	226.9	205.5	193.1	192.3
(b) " " " as a percentage..	100	91	85	85
(c) Price Level as a percentage.....	100	85	102	145
(d) Quantity of money.....	15.6	13.1	13.2	19.5
(e) " " " as a percentage	100	84	85	125

It should be noticed that line (c) has been calculated without reference to the quantity of money in circulation, but contains a series of observational facts, which will go to test the applicability of our theory. From this theory we can calculate the variations in price level, to compare with the observed variations, and as it is more convenient to work with relative numbers percentage values have been given in each case.

The price level (according to Theory) varies directly as the quantity of money and inversely as the volume of trade. It will be obtained from the quotient of line (e) by line (b), this quotient being expressed as a percentage. The following is the result :-

	1913	1914	1915	1916
Theoretical calculation of level of prices.....	100	92	100	147

The agreement between these theoretically calculated values and the observed values of line (c) is entirely satisfactory, when the nature of the problem is considered. In 1914, the theoretical level is too high, and would be much improved if we had been able to make adequate allowance for the known, temporary reduction of credit, i.e. cheque circulation, that

took place immediately after the outbreak of war, or for the temporary tendency to hoard that undoubtedly occured as a result of the breakdown of credit.

(29) The general conclusion of this chapter is therefore that the quantity theory of money is adequate to explain the general rise of prices that has taken place here, and that there is a priori justification for stating that the increased prices are the effect, and not the cause, of the increased quantity of money in circulation. Secondly, from Table V, we conclude that the currency had become inflated by some eight million pounds at November, 1916. The case will be much strengthened, if it can be shewn, as will be done in the fourth chapter, that the currency has become inflated from external causes, independent of the level of prices in Egypt.

(30- Before leaving this portion of the subject, however, it may be pointed out that the extremely low prices obtained for Egyptian cotton at Alexandria, in the end of 1914, receive an easy explanation in terms of the money in circulation. Table V shows that the money available for moving the crop in place of being some 8.5 millions as in 1913 had fallen, through disappearance of gold and restriction of credit, to 3.5 millions. This fall was reflected in the drop in the price of cotton, as Alexabdria. In 1915 the writer worked out the relation between the prices of Egyptian cotton at Alexandria and of American at New Orleans on three and a half years of pre-war prices. The connection was found to be close, though not so close as had been expected[x], and the equation E = 0.4067.A 273.52 was

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x Coefficient of correlation, 0.6123.

found, where E is the price of Egyptian in Piastres per qantar, and A is the price of American reduced to piastres per qantar. The following table gives a comparison between various prices for several months.

Table VI - Comparison of various prices for cotton.
All prices are in piastres per qantar.

	American at New Orleans	Egytpian at Alex-andria.	Egyptian calculated from American	Difference.
1914 October.	132	217	327	- 110
November	142	238	334	- 96
December	143	220	332	- 112
1915 January.	157	228	337	- 109
February	158	247	338	- 91
March...	165	280	341	- 61
April...	186	305	349	- 45
May.....	179	289	346	- 57
June....	181	289	347	- 58
July....	174	279	344	- 65
1916 December	368	794	423	+ 371
1917 July....	516	1200	483	+ 717

The inference here is that, though - as usually happens -the price of Egyptian cotton was largely governed by the of American, still the former was too low. The relative lowness is due to the deficiency of money (currency) in Egypt, in the cotton season of 1914. It will be observed how matters improved later, as more and more currency came into circulation. The recent excessive prices of Egyptian cotton at Alexandria may also be explained, at least partially, by the local inflation of the currency.

III - Foreign trade of Egypt.

(31) In what follows it will be shewn that a very large portion, nearly all, in fact, of the inflation of the currency in Egypt, with the consequent rise in local prices, is due to the peculiar circumstances in which the foreign trade of Egypt is at present carried on. A detailed study of this trade is therefore the next step in this paper.

(32) The basis of any discussion of foreign trade must be the statistics of the Customs Administration, but several corrections have to be made to their figures before arriving at the true balance of trade. It much simplifies all discussions of this foreign trade to consider that it takes place just across the frontier. Imports are then evaluated on cif terms, and exports on fob terms. As regards the part played by imports in the volume of trade, this condition is probably as nearly complied with as is feasible, except that goods, tariffed for a greater or less interval and imported on a rising market, are undervalued, while those imported on a falling market are overvalued. Such goods are therefore on the whole undervalued in recent customs statistics.

It has already been pointed out that token money should appear in the trade balance sheet at its oif value, and not at its face value after import.

Books and newspapers are admitted to Egypt duty free and do not appear in the Customs Reports. It will be necessary to make some estimate of their value,

In the above table for imports, the first four lines (a) (b) (c) (d), give exact figures except that an estimate, based on the number of packets of books and magazines and journals at the rate of 5 P.T. per piece, has been made. The figures for the interest on private

debt and for money token out of the country by holiday makers, pilgrims and departing tourists are estimates. They are probably within one million pounds of the truth.

The amount of any loans to Allies, which were raised in Egypt, should also be included, but as far as the writer knows, no measure of these is available, previous to 1917.

Table VII - Value of imports, in millions of Egyptian pounds.

	1913	1914	1915	1916
(a) General merchandise, token money, Books etc.....	28.44	22.23	20.03	31.94
(b) Gold coin.....	9.75	1.76	0.01	0.02
(c) Letters value declared.....	0.10	0.06	0.05	0.03
(d) Public Debt and tribute.....	4.55	4.56	3.89	3.89
(e) Private Debt (estimated).....	4.00	4.00	4.00	4.00
(f) Expenses of holiday makers, Pilgrims and departing tourists.	1.50	1.25	0.50	0.25
Total.....	48.34	33.86	28.48	40.13

Table VIII - Value of exports, in millions of Egyptian pounds.

(g) General merchandise, including Customs dues and profits.....	32.97	25.20	28.61	39.31
(h) Gold coin, bullion and foreign money.....	11.29	6.72	0.85	0.39
(k) Letters value declared.....	0.06	0.03	0.04	0.02
(l) Expenses of tourists, etc, in Egypt.....	1.44	1.14	9.96	17.67
(m) Services to ships, coal dues, Suez Canal etc etc.....	2.22	2.05	1.68	1.49
Total.....	47.98	35.14	41.14	58.88

The first line of the table for exports gives the value of general merchandise as declared to the Customs but after enquiry, L.E.0.75 per bale of cotton for 1913 or 1914, L.E.1 for 1915 and L.E.1.50 for 1916 have been added to cover exporters' profit, and 5 per cent profit of export has been added to other commodities. The Customs dues for export have also been added, since these are ultimately paid by the foreign purchaser. Freight and insurance have not been added, for, though in most cases paid by the exporter, in the first instance, they are ultimately passed on by him to the foreign shipowner or insurance company. If they were entered at all in the exports, an equal amount should appear in the imports.

The second line (h) gives the exported value of gold coin, bullion and foreign coin,(at its face value), and the next line, that of letters, value declared.

The fourth line (l) gives the result, partly exact, partly estimated, of the expenditure by the annual flood of tourists, the army of occupation, and the expeditionary forces in Egypt. It is necessarily rather vague, and subject to ultimate correction.

The last line (m) comprises services to merchant shipping, dues on fuel in transit, port dues and that portion of the Canal dues which remains in Egypt. Services ti shipping were estimated for 1913 at half a million, and reduced for the other years proportionally to the total number of ships using Egyptian ports. The figure for the Suez Canal for 1913, was kindly communicated by the Agent Superieur of the Canal, and was reduced for the other years proportionally to the total receipts of the Company.

(33) No attempt whatever was made to produce a balance in the imports and exports, and it is some small justification of the estimates, that the foreign trade so nearly balances

in 1913 and 1914. Although in the long run, exports pay exactly for imports, it does not necessarily follow that the exports and imports for one particular year should exactly correspond. Small differences may remain to be adjusted, at the end of each year. But with modern rapidity of communication, and especially in these days of submarine cables, the balance of trade is never long in adjusting itself. The phenomenon of 1915, repeated in 1916, when Egypt became an exporter of 12.7 and 18.4 millions respectively, on balance is particularly noteworthy, and it is to the indirect effects of this and the writer attributes the present inflation of the currency and so the high rise of prices in Egypt.

(34) Before, however, discussing this point in more detail, it will be well to recall briefly the method of adjusting international trade balances, which, in its essence is as follows.

The indebtedness of one country A, say, to another B, say, is made up of the multitudinous debts owed by individuals in A to other individuals in B. The several individuals in A discharge their debts be sending, to their creditors in B, promises to pay the debt at a particular place (in B usually) and on a particular date. The debtors might remit money to B to redeem these promises (bills of exchange) from their creditors there, but this is in general unnecessary. For, simultaneously there may be individuals in B who are debtors to A by just the amount of indebtedness of A to B. If then the B creditors can obtain the promises made in B to Pay A creditors, they can collect the sum due to them in B, by presenting these promises to the B debtors. A similar transaction may take place in A by the A creditors obtaining the bills of exchange accepted by A debtors and cashing them in A. If then the total mutual indebtedness of A is equal to that of B the accounts may be arranged through bills of

exchange, which from their convenience, as obviating the transmission of money, became marketable commodities. Any debtor in A will seek to discharge his indebtedness by purchasing from some creditor in A a bill of exchange and remitting it to his creditor in B. He will even be willing to pay something for the convenience, or to save the trouble of sending cash. Bills of exchange being then desirable commodities, became subject to the laws of supply and demand. When the supply is plentiful and demand low, holders will be willing to sell cheap, and vice versa. Thus a creditor in A who has a bill of exchange for say L.E.100 on B may be willing to take less than L.E.100 for his bills and a debtor who has L.E.100 to pay in B is thus enabled to discharge his debt for less than L.E.100 by buying the bill. On the other hand, when bills are scarce, the debtor in A may have to pay more than L.E.100 for the bill on B. There is, however, a limit to the premium that he will thus pay, for if this premium rises above the cost of remitting gold, he will select the cheaper plan of sending the L.E.100 in gold. This premium marks the export of gold point.

Similarly bills on B may become so plentiful (and therefore so cheap) relatively to those on A held in B that there is a surplus which can only be met by sending gold from B to A. The point at which this occurs is termed the import of gold point

(35) A third manner of adjusting the indebtedness between two countries consists in remitting certain securities whose general acceptability endows them with the character of international money. In Egypt, however, the amount of such international securities that can be absorbed is extremely limited, and any attempt to regulate a heavy balance of trade in favour of Egypt by this means would fail owing to the low demand and consequent low prices

obtained locally for these securities. A certain amount of business is however, done in coupons of the Egyptian Debt, which are bought abroad by debtors of Egypt, remitted to and cashed in Egypt and thus provide funds locally, whereby the indebtedness may be discharged. It is conceivable also that a similar process might be adopted in the case of the interest on private standing debt. Tables VII and VIII show that in 1915 and 1916 even these two methods would not have made good the whole demand for means to pay the indebtedness of foreign countries to Egypt. There were balances of 13 and 18 millions, which in normal circumstances could be met only by the remittance of gold. Egypt, like India with its permanent favourable balance of trade, would have become a vast sink of the precious metals, particularly gold.

A fourth method consists in the replacement of the floating individual indebtedness by a consolidated indebtedness, usually that of the government of the debtors. This method has been several times resorted to in adjusting the exchanges between the Allies and the United States of America.

It has been pointed out in 34, that if bills on a country become too plentiful in another country, their price will fall. This price, quoted for an accepted stan-rd, monetary unit, is termed the rate of exchange, This e between Egypt and England, say, is quoted as so many res to the pounds sterling, and its meaning is that piastres paid in Egypt are taken as equivalent to paid in England, and vice versa. Owing to the valence of the pound sterling to 97.5 piastres, of exchange is 97.5. It rises when the

demand, in Egypt, for sovereigns paid in England is high, i.e. when Egypt has many payments to make to England, or when Egypt has been a heavy importer of goods which are to be paid for in England. Conversely, it falls when Egypt is selling goods to England. This condition generally occurs during the height of the cotton season, since cotton is by far the dominating factor of the export market. The English demand for money in Egypt to pay for the purchases of cotton becomes so great that a sovereign paid in London will only purchase less then 97.5 piastres in Egypt, and the fall soon brings the rate below the gold export point for England-Egypt, which is about 97.2, as the import point is 97.8.

The general rule is that when Egypt is a heavy exporter, the price of sterling is low, i.e. in Egypt's favour, and when a heavy importer, the price of sterling is high. Hence Viscount's Goschen's remark that"the fluctuations which actually take place in the foreign exchanges are at one time the necessary result and the certain index of the inequalities which exist in the indebtedness of different countries."

(37) Here it may be pointed out that, in general, the movement of the exchange brings into operation a cause which tends to annul the movement. If, for example, France has exported freely to England, the rate of exchange will fall and gold flow freely from England to France. This influx of gold, by the quantity theory of money, will raise the general level of prices in France, while the efflux from England will lower the general level there. The result is that the general cheapness in France will tend to disappear, fewer goods will be ordered there, and the cause of the low rate

of exchange will automatically disappear, There is an exception to this rule, however. In certain countries, as India, prices are fixed rather by custom, i.e. by cost of production, than by supply and demand. In India, therefore, the quantity of money adjusts itself to the prices, and any excess over and above that needed for trade simply disappears by absorption, i.e. hoarding. Some day, however, the desire of the Indian native for gold and silver will be glutted and will turn towards more of this world's goods. When that happens, prices in India will inevitably rise, the excess export trade will slacken, and exchange will be freed from all necessities of artifical adjustment.

(38) There is another case, so outside the general run that it may be termed an exception, viz, when one country produces a commodity which is permanently or temporarily a paramount necessity to a second country. This is the case in Egypt, at present. Egypt possesses a practical monopoly of the production of Egyptian cotton. So long as that monopoly exists and the need of foreign countries for this cotton is sore, Egypt can wring a monopoly price out of these foreign countries. In this case, one of two things must happen. There must be a counteracting flow to the exporting country, either of commodities or of money, i.e. in the case of Egypt of gold, since international securities and coupons have but a limited application. At the present moment, and for some time past, the flow of commodities has been severely restricted. It follows that the flow of gold must take place, or - a third alternative - the same severe restriction must be placed on the flow of gold,

so that the export point is lowered. This third alternative implies that the rate of exchange is lowered considerably. In the absence of a counter-flow of commodities, there is no escape from the alternatives either (a) a flow of money of some sort must take place, with consequent maintenace of the rate of exchange at or about the import point for Egypt, or (b) there must be a restriction of the flow of money and freedom for the rate of exchange to move below the import point.

(39) The former alternative,in a modified form, however, is that which has been adopted as the solution of the present problem of international trade, so far as England and Egypt are concerned. Under the arrangement, at present in force, by paying a sovereign, treasurery note or other credit document for L.St.1 into the National or other Bank in London, the payer may purchase the right to 97.5 piastres (less a small fraction for the bank's trouble) paid in Egypt. As will be shown in the next chapter, the consequence has been that Egypt has been deluged with money that she does not need for her trade, and prices have risen here accordingly.

(40) Here it must be remarked that the matter has nothing to do with the convertibility or otherwise of the paper money. The position would be exactly the same (but for a small difference to be noted presently) if the Banks in Egypt were possessed of huge reservoirs of gold here which they issued, against payments in London, at or about the par of exchange. The small difference is that undoubtedly conversion into jewelry or hoarding, to an extent not now probable, would take place. Fundamentally, then the problem is not due to inconvertibility,

but to the interference with the rate of exchange. This interference, to keep the rate of exchange fixed, is an example of a type of legislation common in this country, indeed in all countries, of drafting enactments against effects whilst leaving the causes still fully operative. Such legislation is doomed to failure. It is to remove the symptoms without touching the disease - to fasten the index of a weather glass in order, by stopping its fall, to avert a coming storm. The point is so important that its full discussion requires a chapter to itself.

IV. Effect of Fixed Rate of Exchange.

(41) In this chapter it is proposed to study, in some detail, the effect of fixing the rate of exchange on foreign and internal trade generally. But before proceeding to this detailed study, it may be well at the outset to remove one objection. The pound sterling is defined in terms of the piastre so that one pound is equivalent to 97.5 piastres. This fact has been cited as necessitating the fixation of the rate of exchange at or about that figure, but there is here a confustion of thought. The definition of the tariff as between the sovereign and the piastre applies to the sovereign in Egypt, whereas the rate of exchange between the sovereign and the piastre applies to the sovereign in England and the piastre in Egypt - a far different state of affairs. It will be recognized that to convey a sovereign from London to Egypt may well cost something like 7.5 piastres at present, in which case, an inhabitant of Egypt, a possessor of a pound sterling in London but desirious of transferring it to Cairo, would accept 90 P.T. to save him the trouble of doing so. In fact the error of fixing the rate of exchange lies just in this confusion of the sovereign in England with the sovereign in Egypt.

(42) What at present is the true import gold point as regards England and Egypt? To answer this question is difficult, and somewhat academic, for reasons that will appear later, but an answer may be attempted as follows:-

Consider 100,000 sovereigns to be sent from London to Alexandria:-

Packing costs much more than the usual rate or say	L. st.	5
Freight, usually about 1%, is some 8 times more or.....	"	800
Maritime insurance 3/8 the %.....	"	375
War risks, 5 guineas per cent.....	"	5,250
Interest, 6% for three weeks, say....	"	350
Total..	"	6,780

This is rather over 6 3/4 per cent, and it is a minimum price. In theory the exchange cannot fall below the gold point, in practice it frequently does so at least in certain countries. In Germany, for example, the policy of the Reichsbank for many years has been to encourage importers of gold, but to discourage exporters. On July 28th. 1914, the quotation was 20.54 marks to the sovereign, which is 1 per mille above the point at which it would pay to send gold from Berlin to London, but so far from that being the case gold to the amount of over L.st 800,000 actually left London for Germany on that and the following day.[x] If then obstacles are placed in the way of obtaining gold in London for export, the rate of exchange may fall below the export gold point - how far below depends altogether on the extent of the restriction. There is little doubt that the rate of exchange is at least as low as 90 p.t. at present and very possibly much lower. If we accept the theory that international trade at basis is but a complicated barter, then there is reason to believe that the true rate of ezchange as between the United Kingdom and Egypt has been low as 81 p.t. for over two years. This point will be discussed later.

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x. W.F. Spalding, The Foreign Exchanges, (London,1915) p.37

(43) Adopting for the moment the supposition that the rate of exchange is 90 p.t. for a pound sterling paid in London, we are now in a position to study the effect of fixing that rate at 97.5, first on the price of export then on local prices, and, thirdly on the price of imports. The first case, exports, is best examined by taking concrete examples, for which purpose onions and cotton will be selected. Onions have been chosen because this commodity is one for which residents and foreigners are in competition. It is perhaps easier to see the operation of the exchange if we first consider the exchange to have been free and at its gold import point. A merchant in England, desiring to purchase onions might, be paying L.st 100 into a Bank in London, become entitled to cash in Egypt to the amount of L.eg,90. As 90 p.t. is about the price of a qantar of onions, he would thus be enabled to buy a hundred qantars for his L.st.100 (He would, in any case, have to arrange for freight and insurance in addition, but since these payments are made in London we may neglect them). Suppose now that the exchange is no longer free, but is fixed at 97.5. The London merchant, by paying his L.st 100 to the London Bank, now becomes entitled to cash in Egypt to the amount of L.eg.97.5, to neglect small differences and commisions. Without additional cost to him he may now bid above 90 p.t. for the qantar of onions, and he will be made to do so. The local merchant desires to get as much as he can for his onions, and finding a foreign merchant willing to bid above 90 p.t. will ask more than that and get it. The local consumer has been unwilling to pay more than 90 p.t., and so with

the higher bidder against him, will have to take less than his original qantar, and at an increased price. A balance might be struck at say 94 p.t. per qantar, at which price the English merchant buys 1.04 qantars for his 97.5 p.t. while the local consumer buys only 96 rotls. for which he would pay 90.2 p.t. or 2 milliemes more than before, a fractional difference which may be left out of account, as it is irrelevant to the argument, The result of fixing the exchange therefore has been that the London merchant now gets 104 qantars for his L.st.100 paid in London, while the poorer Egyptian consumers, i.e. those just willing to give 90 p.t. for a qantar, have been squeezed out, and the price of onions has risen to 94 p.t. a qantar. As a nett result Egypt has lost for her consumers 4 qantars of onions and has received an additional L.eg 7.5 of paper currency.

(44) Consider now the case of cotton, and suppose the local export price to be 46.8 or L.eg 9.36 per qantar for the quality in question. With a free rate of exchange at 90, a cotton spinner paying L. st 2600 in London would obtain the right to L.E. 2340 in Alexandria, for which he could purchase two hundred and fifty qantars of this particular cotton. If now exchange is fixed, for his L.st 2600 he will obtain L.eg 2535 in Egypt and will be prepared to bid above 46.8 a qantar, since it costs him no more than before. The cotton exporter finding that he can get more than 46.8 a qantar will ask as much as he can get, and will finally put the price up to 50.7 or L.eg 10.14 a qantar. At this price the cotton spinner will again get 250 qantars for his L.st 2600

as before, and will be quite satisfied. Egypt parts with 250 qantars of cotton: the volume of trade done is exactly as before; but there is now an unnecessary L.eg 195 of paper money in circulation. The amount of money in the country has been increased by this amount, and by the reasoning of Chapter II, the general level of prices will be raised correspondingly. This same process of inflating the currency follows on every such transaction of export. Its amount is L.eg 195 on L.eg. 2340, or 8 1/3 per cent on every transaction, since, by fixing the rate of exchange, L.E. 2535 is required to do the work, or carry through the same business as L.eg 2340 had the exchange been free.

(45) As regards imports, again the problem is best considered in the light of a concrete example, let us say a bale of 100 metres of woollen cloth, valued, o.i.f. Alexandria, at L.st.40. With free exchange this would come to L.eg.36, which is what the Egyptian merchant would remit to England in Payment. Customs, clearing expenses and profit would come, let us say, to 25% - the actual percentage is immaterial, but this is about a fair figure. The cloth would then be sold for L.eg.45. With the fixed exchange, the importer has to pay 40 X 97.5 p, or L.eg 39, and 25% on that amounts to L.eg.9.75. The cloth is then sold at L.eg. 48.75, an increase of price of L.eg. 3.75 or again 8 1/3 per cent. Here the effect on the local prices of imported articles is direct and obvious. Local prices of such articles have been raised 8 1/3 per cent through fixing the rate of exchange.

(46) Let us now consider the result of expending L.st.3000 on exports from Egypt (valued fob), while at the same time imports worth L.st.3000 (valued cif)

are sent here. Whatever the rate of exchange, the two quantities would balance in the foreign and the local statements of account. The importer will withdraw from circulation to pay for his imports exactly what the exporter throws into circulation by the purchase of his exports. So long therefore as exports and imports nearly balance in value, the rate of exchange does not effect the amount of money in circulation. If, however, imports are valued at L.st.4000 fob and exports at L.st.3000 cif, the case alters.

(a) With exchange free and at 90. The exporter receives L.eg.3600 and the importer pays L.eg.2700 and L.eg.900 has been thrown into circulation.

(b) With exchange fixed at 97.5. The exporter receives L.eg.3900 for his wares, while the importer pay L.eg.2925 for his. On the balance L.eg.975 has been thrown into circulation.

This amount is L.eg.75 more than before, which means that, by fixing the exchange, an unnecessary L.eg. 75 of paper money has been forced into circulation. As before, the amount is unnecessary, since the same business could have been transacted without this L.eg.75 had the exchange been free.

The rule is now evident. The amount of inflation of the currency depends on two things, the excess of exports over imports, and the difference between the true rate of exchange and the fixed rate, expressed as a fraction of the latter.

	Value in English money	Value on fixed exchange	Value on free exchange
Exports...	L.st. 4000	L.eg. 3900	L.eg. 3600
Imports....	" 3000	" 2925	" 2700
Difference	" 1000	" 975	" 900

The fixed exchange is 97.5

" free " " 90.0
" difference " 7.5.

The inflation, as found above, is L.eg.75, which is 7 9/13 per cent of the excess of exports over imports, as valued under the fixed rate, or 8 1/3 per cent, as valued under the free rate, or L.eg, 7 1/2 per hundred pounds sterling.

(47) We are now in a position to estimate the minimum inflation in local currency, due to fixation of the rate of exchange. In 1913 and 1914, the question hardly arises, since there was an approximate balance. In 1915, the excess of exports amounted to 12.7 millions, and the evaluation was made under the fixed exchange. Had that exchange been free, the evaluations would have been

Imports L.eg 26.30 Millions.
Exports L.eg 37.98 "
Difference L.eg 11.68 "

The inflation due to this cause was therefore one million (i.e. 12.7 - 11.7) at the end of 1915. In 1916 a further inflation of 1.4 millions had been superadded to the former, or over 12 per cent of the average quantity of money in circulation in 1916. To at least this extent, the, the rise of prices in 1916 was due to excess of currency, caused by interference with the exchange. By the end of June, 1917, at least L.eg.600,000 more had been added to the inflation, and before the end of 1917, we may reasonably expect the unnecessary surplus of currency to reach 4.5 millions.

Here it is proper to point out that true inflation would not begin till the notes issued exceeded the amount of primary money withdrawn from circulation.

This amount we have estimated at 4.5 millions, and the account of the National Bank show that the increase of the note circulation had attained 3.9 millions by July,1915, 4.3 millions by August, and 6.1 by September, but some of the last amount was probably due to the needs of the cotton crop. When therefore allowance is made for the fall in the volume of trade, there is reason to believe that true inflation began in Egypt in July, 1915, and that up to that date, the currency was insufficient for the commerce of the country. Consequently prices ruled low until July 1915, and only began to rise when the true inflation started. This is entirely borne out by the index number of wholesale prices for Egypt (See Table IX).

Table IX.

Index number of wholesale prices of some Egyptian commodities, and Economist Index number.

	Index number x Egyptian commodities.				Economist Index number xx			
	1914	1915	1916	1917	1914	1915	1916	1917
January.....	-	93	112	133	-	117	150	193
February.....	-	96	114	135	-	122	156	198
March.....	-	101	116	138	-	129	156	206
April.....	-	98	115	139	-	130	163	210
May.....	-	96	111	146	-	130	168	211
June.....	-	93	111	153	-	127	164	220
July.....	100	98	114	158	100	128	164	-
August.....	104	98	113	-	105	128	170	-
September.....	101	104	116	-	108	130	172	-
October.....	100	104	124	-	106	131	179	-
November.....	100	104	133	-	108	136	186	-
December.....	96	108	137	-	109	142	191	-

x Mean for Cairo and Alexandria markets.

xx The Index number given by the Economist is based on the mean prices of 1901-5 taken as 100. On the basis the number for July, 1914 was 116.6, but the numbers here given have been reduced to percentages of that of July 1914, for comparison with Egypt.

N.B. The Egyptian index number is by no means so comprehensive as that of the Economist, since it involves only a relatively small, though important, group of locally produced commodities. It will serve, however, for a rough comparison.

(48) Again the fact must be emphasized that this is a minimum estimate and it is desirable to form some idea of what the true figure for the exchange should be. This may be done in the following way.

The rate of exchange between two countries is the ratio existing between the money of one country, in that country, and that of another, in that other. In general, it is usual to compare the moneys in terms of some common substance - gold, or silver - but we may equally do so in terms of other substances desirable to both peoples, or better still, through things in general. This becomes necessary when the currencies, either or both, are depreciated, and the market in gold is under restriction. Thus Bastable says, "The currency of the countries is, too, a necessary element in the settlement of the terms, and in the case of inconvertible paper circulation, the most potent one". For example, between Argentina with a currency so depreciated that gold is at a premium of 127 per cent, the rate of exchange with London depends far more on this fact than on the indebtedness of one country to the other, or the cost of sending gold. So at the moment the rate with Italy, 35 lire for the sovereign, does not mean that the cost of sending gold from Italy to London is 10 lire per sovereign, but that the Italian currency is depreciated in the ratio 35 to 25. Where the general level of prices is the same in the two countries, the purchasing power - the value - of money is the same in both. We shall consider 1913 to be such a normal year, as between England and Egypt and we shall escape difficulties arising from the fact that, owing to the customs tariff, prices in general tend to rule steadily higher in Egypt than in England, by taking the level of prices in each country in that year as standard, denominating it 100, and comparing subsequent prices with that standard. The

resulting rate of exchange will then be expressed as a percentage of the par rate. From the tables published regularly by the Economist, we know the level of prices in England for 1913, 1914, 1915 and 1916, and our calculations in 24 - give relative figures for Egypt for the same years. These are exhibited below:-

	1913	1914	1915	1916
Economist Index Number.....	121.7	120.8	150.6	196.4
ditto as a percentage of 1913...	100.0	99.3	122.9	161.4
Egypt, level of prices.....	100	85	102	145
Exchange rate calculated as a percentage of par.....	100	84	83	90
True exchange (calculated).....	97.5	81.9	80.9	87.8

(49) We can now calculate the probable total inflation due to a rate of exchange that had fallen naturally and not been the subject of artifical restriction. The money unnecessarily introduced into circulation at any time is proportional to the total excess of exports over imports multiplied by the defect of the true exchange from par, expressed as a fraction of par. We shall take the true rate as being about 83.7 per cent of par or differing by one sixth from par.

At the end of 1914, the trade balance was small, 1.3 millions, and the corresponding increase of currency 0.2 millions. The trade balance in 1915 amounted to 12.7 millions, the inlfation due to it to 2.1. millions, and the total inflation 2.3 millions. At the end of 1916, these figures had become 18.7 millions for the balance of trade, 3.1 millions for the additional inflation and 5.4 millions for the total inflation.

A comparison of these figures with those of table V, 27, shows that they afford a not unreasonable quantitative explanation of the increase in the currency, especially

when due regard is given to the change in the volume of trade. (28,(b)).

These figures may be elaborated in conjunction with those of Table V, but to do so would serve no very useful purpose. The point of this section is that a quantitative explanation of about the correct magnitude had been given for the enormous rise in the currency in 1916, that this explanation has been based on certain theoretical considerations, and that these, followed out to their logical conclusion, give results which are highly consistent with figures obtained from practice.

It must, however, be noted that this calculation and that of 47 stand on different footings. The basis of the latter is a calculation of the gold point from considerations of such items as the cost of packing and carriage of gold, its insurance and the loss of interest during its transport - all matters independent, or nearly so, of the level of prices in Egypt. The basis of the calculation of this section has already involved consideration of the level of prices here, and to use it to explain that level would be a fallacy. What is legitimate, however, is to check the inflation here deduced from theory by comparing it with the quantity of money, arrived at in 27 by perfectly independent calculations. If the results are reasonably consistent - as they have been pointed out to be, above - a strong verification of the theory has been obtained. It is contended then that the theory of the present paper has shown itself, at every check, consistent with the observed facts, and that its soundness may be taken as demonstrated.

(50) In these calculations, it will be seen that the exchange, after reaching a minimum figure in 1915, has again begun to rise. This rise is due to the more rapid advance of inflation in Egypt than in England. This local inflation must increase until prices in Egypt nearly attain the very high level of prices in England. Since prices in England are always rising, prices here will continue to follow without overtaking them. At the same time the rate of exchange will gradually rise until it approaches par, but without actually attaining par. When that has happened, Egypt will have become, to all intentsand purposes, an economic annex of London.

(51) This state of affairs must continue so long as Egypt continues to export more than she imports. When however, it is sought to realise some of the vast credit now existing in London, and the balance of trade turns to Egypt's disadvantage, the true rate of exchange must also turn to her disadvantage. But in the process of change from favourable to unfavourable balance of trade, something like a crisis will arrive, and it becomes difficult to forecast what will happen.

Prices here will then rise above prices in England and continue above, until the whole of the credit has been absorbed. As the credit abroad becomes exhausted, the inflation of currency here will gradually disappear, until the amount in circulation corresponds to the commercial needs of the country. When that is so, exchange may be left to itself.

(52) From the narrow point of view of business it might appear that anything was quite satisfactory, since the inflation will be only temporary, and will ultimately disappear, while the necessity for interference with the movement of the exchange will also disappear. But from the deeper point of view, this process must take time. So long as exports here continue to exceed imports, inflation will increase and prices will tend to rise,

and this process may extend over two years. While it goes on the wage earner and the professional man will suffer, and the agriculturist, trader and business man will prosper, at the expense of the man on fixed salary. Irving Fisher (L.C.,p.205) remarks on the "actual injustices produced by rising prices through interference with distribution and the subtle transfer of wealth from those having fixed money incomes to other members of society". Egypt, at the moment, presents a typical example of this process. True, the injustices will be partially remedied and the wealth retransferred, if, when the period of falling prices commences, salaries and wages are allowed to continue high for as long a time as they have been kept too low. Of this, however, there is little chance. The payers of the fixed incomes are, as a rule, better informed than the recipients, and will seize the earliest opportunity of reducing war bonuses or special allowances. It is clear then that the present prosperity of Egypt is based very largely on the unprosperousness of the class of fixed incomes and that the future holds no prospect of their having the balance redressed.

Further, than that, the disadvantage of the wage earner may become so great that his efficiency and future health and those of his family are compromised, and in cases that have come under the writer's notice this has undoubtedly been so. No chance of a return to normal prosperity in the future can compensate for such a state of affairs. To that extent then, the present prosperity of Egypt amounts to a draft on the future welfare of the Country.

Moreover, the inequality of the distribution in one direction during the period of rising prices, and in the other direction during the period of falling prices makes for discontent and difficulty of government.

(53) It should also be pointed out that the Government is itself a sufferer through the rise in prices and from the fixation of the exchange. Some portions of its revenue - land tax and date tax, for example - are fixed, and thus the Treasury comes into the class of earners of fixed incomes. The corresponding expenses are not all fixed, and the Treasury suffers. And since these fixed taxes are not likely to be increased this disadvantage of the Treasury will persist until normal conditions and prices are reestablished. There will be no compensation in its case such as will operate to a sm ll extent for the wage-earner whose war-bonus may continue after prices have begun to fall.

In another manner also the Treasury has lost heavily owing to the fixation of the exchange, viz. in paying more to foreign creditors than would otherwise have been necessary. The annual amount of the coupon (excluding the Tribute) is L.eg.3,552,000, of which only about 5 per cent is on account of bonds held in Egypt. The balance or say L.eg.3,374,000 has been remitted to Europe at par, whereas by the calculations made in 48, the true rates should have been 82, 81, 88, for 1914, 1915 and 1916 respectively. Had these rates prevailed or had the gold export point (90) been maintained the Treasury would have economised respectively.

in 1914 L.eg.	268,000 or L.eg.	126,000
in 1915 L.eg.	570,000 or L.eg.	253,000
in 1916 L.eg.	321,000 or L.eg.	253,000
in all L.eg.	1,159,000 or L.eg.	632,000

According to circumstances the real economy would have been more in the former case, since the tendency for the rate of exchange to return to par would not have existed, and in the three years the economy might easily have amounted to one and a half millions. It is true that this economy would be needed later when the rate of exchange moved against Egypt, but in the meantime, the Treasury will be permanently the loser by the interest on the sum which would have accrued in this eay. On the other hand the Treasury would have lost, on customs (excluding tobacco) and shipping dues, the following sums:

in 1914 L.eg.	75,400 or L.eg.	36,500
in 1915 L.eg.	282,300 or L.eg.	128,300
in 1916 L.eg.	265,900 or L.eg.	209,900
in all L.eg.	623,600 or L.eg.	374,700

which again would have been counteracted by the gain when the exchange moved against Egypt. Had a special account been instituted for such losses and gains, the sums at its credit would have been respectively:

End of 1914, L.eg.	193,000 or L.eg.	90,000
End of 1915, L.eg.	481,000 or L.eg.	215,000
End of 1916, L.eg.	536,000 or L.eg.	258,000

on which sums, continually increasing, the Treasury would have drawn interest until in the course of events they became absorbed.

It has been objected that an English holder of, say, L.st. 10,000 Egyptian Unified 4 per cent would not accept payment in London, but would seize the opportunity to post his half-yearly coupon for L.st. 200 to Cairo, collect the payment there ar 97.5 O.T. to the sovereign, and have the money remitted at 90 P.T. to the sovereign.

This objection neglects the expense of sending the coupon, which would amount to much the same as that of sending gold, except for the lessened cost of packing and carriage, which would probably be offset by other expenses. In point of fact, nothing would have been gained in this way, and the Treasury would have been in a position to liquidate its indebtedness to Europe by buying the cheap bills on London.

(54) Since the Army have been heavy contributors to the favourable balance of trade, it may be well to examine how this state of affairs has affected them. The answer is - Not at all or to only a small degree. The rise of prices of local commodities with a fixed exchange has taken the place of a disadvantageous exchange and lower prices. For example, if the military authorities remit L.st.1000 to pay for say tibn at L.eg.2 a ton, they get L,eg.975 in Egypt and buy 487.5 tons of tibn. Had the exchange been allowed to fall naturally say to 80 they would have received L.eg.800 in Egypt, but the price of tibn would have been at or near 164 P.T. and they would still have been able to purchase 487.5 tons of tibn. Of course, to apply this theory rigidly to a particular case, other than by way of an example, is fallacious, but it would have been true that, in general, the Army would have received the same amount of goods in Egypt for L.st.1000 paid in London, as they do now.

A similiar remark would apply to men's pays. They would have received fewer piastres per day, but owing to cheapness of commodities, would have got the same quantity for the apparently lower pay.

(55) - An objection may be raised that internal commerce would have been enormously complicated by the variation in the exchange. That would have been quite true had the sovereing remained as the medium of exchange, or British Treasurey Notes taken its place. But since the sovereign has entirely disappeared from circulation, the necessity for considering a varying exchange would never have arisen, in internal commerce.

(56) The argument of this chapter admits of an elegant mathematical expression, which, however, it has seemed advisable to keep to the end.

Let M be the quantity of money in circulation in Egypt at any time, and M_0 that at the beginning of our calculations.

Let be the total excess of the value of exports over that of imports, from the start of the calculations.

Let R be the par rate of exchange and R_0 the true rate at the given time.

Then by 46, the increase of money dM, due to the fixation of the rate of exchange, is given by

$$dM = (1 - r/r_0)\, d \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Further, by 48, since the true rate of exchange is as the level prices here to that in England, then, $R/R_0 = p/p' \div p_0 / p_0'$ .....(2)
where P is the level of prives prevailing here, and P′ that in England, and P_0 and P_0' are corresponding quantities at the beginning of the calculations.

Again, by the quantity theory,

$$P = MN/Q \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where N is the velocity of circulation here and Q is

the volume of trade here. If we write $M_1 = P' Q/N \times P / P$ then M_1 is the quantity of money that would have been needed to finance Egyptian trade, had prices here been those prevailing in England and had allowance been made for the normal difference in prices here and in England.

Thus $R/R = M/M_1$.....(4)

Hence (1) becomes $dM = (1 - M/M_1)\, d$ .....(5)

In practice M_1 is independent, or very nearly so, of the value of either exports to or imports from Egypt, and so of , and it is also independent of the amount of money circulating in Egypt. We may therefore integrate (5) at once and obtain

$M_1 - M = (M_1 - M\ ) \exp. (-A/M_1)$.....(6)

This equation comprises the whole of the argument of chapter IV, but in point of fact was not investigated until 48 had been reached, and the application of the principles previously enunicated was being sought. As usually happens, the investigations of the fundamental equation threw a flood of light on the question. It has not, however, been used in the calculations, which therefore are susceptible of slightly closer approximation to the true conclusions from the data than the actual calculations. The difference, however, can be but small.

The following conclusions are immediate deductions.

(a) The quantity of money in circulation in Egypt must increase until it approaches that required to finance Egyptian trade at English prices (due allowance made for normal differences in price-level) and the degree of approach depends on the ratio which the aggregate balance of foreign trade from the start of the calculations bears to this amount of money.

(b) The exchange approaches par at the same rate.

(c) An increase of prices in England will produce a more than proportionate increase of prices in Egypt, and this local increase will be greater as the true rate of exchange approaches par again.

In fact, if prices in England change by a fraction r, M_1 above will change to M_1 (1 r), and if M and M′ are the quantities of money corresponding to the first and second price level in England.

$$\frac{dM'}{dM} = \frac{1 - M/M_1 (1 \quad r)}{1 - M/M_1}$$

or if r is small $\dfrac{1 - (M/M_1)(1 - r)}{1 - M/M_1}$.....(7)

If is the true rate of exchange as a fraction of par, $M/M_1 =$, and (7) becomes $1 - (1 - r) / (1 -$),

or 1 r /)1 - .....(8)

The change in the local quantity of money due to a fractional change r in English prices will be augmented in the proportion / (1 -) which becomes very great as approaches unity, i.e. as the true rate of exchange approaches par.

The evils due to the present state of affairs are therefore likelu to augment in an accelerating degree, unless the matter is taken in hand and a remedy sought.

(57) The equation for what may be called for defkux of the present wave of pseudo - prosperity is easily found to be: $M - M_1 = (M_2 - M_1) \exp. (- /M_1)$.....(9)

Where is now the excess of imports over exports, M_2 is the quantity of money at its greatest (future) inflation.

The corresponding exchange equation is

R/R - 1 = (R2/R - 1) exp. (- /M_1).....(10)

These equations will continue to obtain until becomes equal to the total excess of exports over imports on the up movement.

If, however, the rate of exchange is kept at the gold point, and the cost of transporting gold is taken to be constant the solution of equation (1) is simply

$$M - M = (1 - R/R)$$

In this case the total inflation of the currency is proportional to the total trade balance, and to the fractional fall in the rate of the exchange from par.

V. Resumé - Objections - Remedies.

(58) In the preceding chapters an explanation of the quantity theory of money has been given, and an attempt made to evaluate the different factors that enter into its expression, so far as Egypt is concerned. It is shown that the volume of trade here has diminished since the war, although the monetary measure of this trade has increased. This result is due to the enhanced prices, and an estimate of the rise of the general level of prices is thus obtained.

Next, by an independent piece of work, it is shown that the currency has been augmented, and in just such proportions as might be expected from the quantity theory. Theory and practice are thus in as close agreement as the nature of the data admits of, but so far only a casual relationship has been established between the rise of prices and the increased quantity of the currency. Which is cause and which effect, however, is not established at this point, but here is a presumption that the rise in prices, which is nearly universal, must be the effect, and the increase of currency the cause.

A study of the foreign trade of Egypt next follows, together with some consideration of the means of adjusting foreign trade balances. Applied to Egypt, in present circumstances, this shows, by calculations quite independent of what has preceded that the plan for fixing the exchange, adopted in August, 1914, and modified on subsequent occasions, must necessarily cause a certain inflation of the currency, by forcing into circulation money that would not have been needed for the corresponding volume of trade, had the rate of exchange been left subject to the ordinary laws that govern it, viz, the supply and demand of indebtedness and the instruments for settling indebtedness. A measure of the fall in the exchange which ought to have taken place is then calculated, again from data quite independent of any of the preceding work. The rate so obtained must be regarded as a maximum, and the true rate is probably below that. Later on, an attempt, more abstruse perhaps, and more liable to objection, is made to calculate this true rate. This second attempt is based on a comparison of the purchasing power of the Egyptian and British currencies. It is then shown that these two attempts give results, as to the inflation, that are of at least the correct order of magnitude when compared with the actual currency. Some applications to the position of the class of fixed-wage earners, of the Government itself, and of the Expeditionary Force are then made, and finally a mathimatical expression is obtained for the main thesis of the effect of fixing the exchange, on the currency.

At every stage the theory is tested by figures obtained from practice, and the main steps in the calculations are independent of each other. That they may all be co-ordinated by the theory amounts therefore to an inductive verification of the strongest possible character, and shows that the theory gives a true explanation of the facts. It is therefore a valuable guide in the search for remedies for the present economic situation of the country. Before using it for this purpose, however, some objections that have been raised will first be stated.

(5$_9$) It has been objected that prices are settled by the laws of supply and demand, and that demand having increased in Egypt, and in very many instances supply have increased, a rise in prices necessarily follows. This is true to a certain extent, but is not adequate to explain the excessive rise in prices, nor the fact that nearly all commodities have risen in about the same proportion. There is involved here the logical fallacy of arguing from the part to the whole. In the words of Professor Irving Fisher, "It is as futile to explain a general rise of prices by appealing to the particular forces affecting particular prices, as it would be to explain a rise in the ocean tides by appealing to the forces which make the waves."

But those who appeal to "supply and demand" of commodities neglect the equally important "supply and demand" of money. The point of the present paper is that these equally important factors have been estimated

and shown to be adequate to explain nearly all of the general rise in prices in Egypt.

(60) The argument has been put that in effect Egypt has done no more than India does in fixing the rate of exchange at 1s.4d. to the rupee. Again this is true, but only to a certain extent, for, so long as India was able to import silver enough to adjust the favourable balance of trade, and just so long, the Council was able to maintain the exchange. But with the rise in the price of silver and the difficulty in procuring it in sufficient quantities to balance the account, India has found it impossible to maintain the exchange and at the same time allow of unfettered export. A crisis of exchange has resulted. Calcutta Exchange banks are now "undertaking to secure payment first for export firms making shipments for Government and war contracts, and refusing to buy the bills of exporters on private account except to the extent to which such exporters could produce "cover", i.e. pay to the Exchange banks money to be remitted from India to London. Brokers are ready to sell "cover", and the price to be paid for it (and to be secured for it by the importer) is equivalent to a rise of the sterling value of the rupee above 1s.4 1/4d." And nevertheless the export trade of India is greatly hampered and it is extremely difficult to finance shipments to Egypt of certain goods, not declared to be "of national importance". For this reason, the

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writer has been advocating the extension to the utmost of exports from Egypt to India. Were the trade balance zero, we should be spared the anomaly of Egypt and India having apparent par exchange with London, and yet Egypt being unable to remit to India.

A remedy is proposed by the introduction of rupee notes. If this is adopted in India, the result must be a much increased general rise in prices there, such as has taken place here.

(61) On more than one occasion it has been argued that there can be no inflation, since the notes are issued only in response to a legitimate commercial demand. That is true in a sense, but the commercial demand is higher than it ought to be under a free exchange, as has been shown in 43-46. It is perhaps worthy of note that a somewhat similar plea was put forward, in 1810, to defend the then policy of the directors of the Bank of England. Their contention was that there could be no possible excess in the issue of bank notes so long as these were issued in purchase of bills of undoubted solidity arising out of real commercial transactions. And yet paper fell to a discount of 15 1/2 per cent, while the exchange with France fell 14 per cent. This plea was not accepted by the "Bullion Committee", appointed to enquire into the causes of and remedies for this state of affairs, who reported that no greater fall in the exchange than 7 per cent - the cost of sending money to France - could result from the unfavourable balance of trade; that the residual fall was due to depreciation of the currency; that the principles laid down by the directors,

as above, was entirely unsound; and that the only safe guide was the state of the exchanges and the price of gold bullion. France was then in much the same position with respect to England as Egypt is now. A favourable balance of trade, and a depreciated currency in England exist in both cases. The exchange in the one case fell 14 per cent, in the other it ought, and is here insisted, to have fallen by a similar amount, but by preventing its fall, Egypt has been deprived of "the only safe guide" for the regulation of note issue. The second guide - the price of bullion - is not available at present, since bullion is unobtainable, but it is worth mentioning that 102 piastres were being paid in August 1917, in the bazaara of Cairo, for new British sovereign - a premium of close on 5 per cent.

The House of Commons, it is true, refused to confirm the report of the Committee, the policy of the Bank continued, paper fell to a discount of nearly 30 per cent, and a crisis, precipitated by a mania of speculation, supervened in 1813. Six years later matters threatened again, and a Committee of both Houses, appointed to reconsider the question, vindicated the principles laid down by the Bullion Committee.

The above information is condenses from the account by Mr. D.A. Barker, Cash and Credit, Cambridge, 1912,pp.79 et seq. The next eight pages of this excellent little book are most illuminating in the present circumstances. In the case of a country with a gold standard, trading with a paper-using country, the rate of exchange depends almost entirely upon the relation between the level of prices in the two countries (l.c.,p.82) If that is so when one country uses a gold standard, the statement must be still truer when both countries are using paper, which is practically the case in Egypt and England at present. This is a vindication of the principle adopted in 48.

(62) A suggestion has been made that the price of local produce is bound to rise in conformity with the rise of produce of a similar kind elsewhere, until the price is such that it just does not pay to import the foreign produce in competition. This is another form of the supply-and-demand argument of 59. It is inadequate to explain the excessive rises, and above all the general rise, in prices, especially in a country like Egypt which produces nearly all the food necessary to sustain its population. The imported grain-food amounts to about 6 per cent of the consumption, and a shortage of 6 per cent, if none were imported, would not explain a rise of some 50 per cent in the prices of cereals.

A small increase in the general level of prices, owing to the increased price of imports is inevitable, but when the ratio borne by the trade in such articles to the total volume of trade is remembered, the conclusion follows that the total effect must be but small, (see 24).

(63) Other objections there may be to the theory here set forth, but they have not come to the writer's notice. It remains now to consider possible remedies for the present condition of affairs. Such remedies may be either fundamental or secondary. Unless the former can be adopted, the latter will be found to be but palliatives. Both will therefore be now considered in turn.

The inflation, and the consequent rise in prices, are due to the accumulated excess of exports over imports, and to fixation of the exchange, jointly. These are the fundamental factors which cause the

inflation, and no remedy which fails to deal effectively with these causes can be other than a palliative. It is not now possible to annul the accumulated credit balance, and consequently, if we leave the exchange fixed at par, the inflation must continue, until prices reach their present level in England. The first and principal remedy is therefore to allow the rate of exchange to vary freely, under the control of the laws of supply and demand of means of discharging indebtedness in Egypt, to which it is subject in normal times. This will at least check the inflation.

To effect this, the power of the National Bank to issue bank-notes should be restricted to at least that in existence before the war. That is, banknotes should only be issued against a cover of half gold and half securities, deposited in Cairo. Transporting the necessary gold and securities will cost money, some 7 per cent, it is estimated above, and in the case of gold there is the objection that it might be sunk. Therefore an equivalent plan may be proposed in order to obviate this risk. By this plan the gold and securities required for the issue of bank-notes here would be found in London, the cost of sending the 50 per cent of gold and 50 per cent of securities, would be worked out on the basis of packing, ordinary and war-risk insurance, freight and loss of interest. This cost should be calculated as a business transaction, so that it would be indifferent to the shipper whether this international currency were shipped or dealt with as now proposed. In this way the true rate of exchange would be found. This currency, deposited as cover for the notes, would be handed over to the Bank of England,

acting as agents for the Egyptian Government, and would not be shipped , but stored in London. In Cairo, the National Bank would be authorised to issue notes to the value of the cover less this calculated cost of transmission. The exchange would be theoretically at gold point, or if, as is highly probable, there was any difficulty in finding the gold, below gold-point. The interest on the securities would, as at present, go to the credit of the Bank.

The sole objection that the writer can see to this plan is that the Government would receive only some 7 or 7 1/2 per cent on future favourable balances of trade, but might be called on to find exchange on London to far more than the total balance accuring from the inception of this plan. If the exchange had then moved as far to the opposite side of par, the Government would be a loser. But on the other hand, it is extremely unlikely that the balance of trade will move against Egypt until, by the re-establishment of peace, the heavy war-risk premium has disappeared. The calculated cost of sending gold and securities to London would then fall to something under 2 per cent, and the Government might even make money out of the transaction. An essential condition of such a plan is that the balance shall remain in London.

(64) Secondly as a subsidary method, we may reduce the balance of exports over imports. In the absence of a free rate of exchange this would slow down the rate at which inflation increases; and if the balance of trade became unfavourable to Egypt; would even lessen the inflation. We have small control over

imports and cannot operate through them to deflate the currency, but since nine tenths of our exports consist of cotton and its products, we can and should control them. Control of the quantity is not immediately feasible, but control of the price is, and if the price were reduced so as to bring about a better balancing of the trade account, inflation would cease to augment. The step taken recently whereby the whole of the cotton seed has been acquired by the British Government at a reduced price is from this point of view a step in the right direction. It has obviated a further inflation of certainly L.E.170,000 and quite possible L.E.450,000, and if cotton cakes and cotton seed oil are taken into account, probably L.E.60,000 to L.E.160,000 more.

(65) The third remedy is to withdraw from circulation as much of the inflated currency as possible. There are two principal ways in which this may be effected. Either, as has already been proposed, a loan should be floated in Egypt, or heavy taxation should be instituted, but in both cases an essential condition of success is that the results of the loan or of the tax should be spent in the country as little as possible. A further condition of success is that the loan and tax should take the money from the right pockets. Thus a tax by increase of suty on imports would increase the burden - already too heavy - on the earners of fixed incomes; so would a tax on rents, similar to the ghaffir tax, which, from this point of view, is extremely inequitable. An increase of the land-tax on cotton growing areas would be the most equitable. It would strike at the root of the trouble by taking the money

from the greatest beneficiaries of the inflation, and being of the nature of economic rent paid to the Government, instead of to the proprietors, would not be shifted on to the consumer, i.e. the foreign purchaser. The price of Egyptian cotton, monopolised as it is by Egypt, is fixed by the utmost sum which the foreign consumer can be forced to give for it in his own currency, and not by any costs of production or local surcharges.

A loan would, in all probability affect the second great category of beneficiaries from the inflation, i.e. the commercial classes, who are more likely to seek investment than the agricultural class. The laon, however, would be of little avail of used in any way to inflate credit. Thus advances against the scrip or bonds should be made with the strictest conservatism. Otherwise it might well happen that inflation to the amount of the advances was produced in place of deflation to the amount of the money withdrawn.

(66) Fourthly, it should be recognised that, from the present point of view, hoarding is actually beneficial. Hoarding may be looked on either as the withdrawal of currency from circulation, or as a lessening of the velocity of circulation. In either case the result is the same, a lowering of prices.

(67) Fifthly, speculation on credit should be discouraged. Speculative credit throws into circulation currency not wanted for the ordinary business of the country and in itself tends to increase prices.

(68) Sixthly, as far as possible the further issue of token money should be restricted, unless this money is issued against the currency which is not returned into circulation. Emphasis must, however, be again laid on the fact that the last four proposals are but palliatives and that no real improvement can be maintained while the exchange is fixed.

(69) If these, and possibly other remedies, are carried out, inflation will be taken in hand, and the rise of prices checked, and even turned into a fall. The country as a whole will not lose, for the commodities produced will be more equitably distributed, and efficiency will be preserved. In the long run it would not lose over the credit now existing in Europe, for it would continue to draw from Europe what it needed on a favourable exchange, instead of exhausting its credit at par, but the inequitable distribution of wealth that has resulted from the present policy would be, at least, modified in a more equitable direction. Foreign trade would not suffer. The country would send as much cotton abroad as at present, and would receive as many commodities, and to the same quantity, as at present, and their value reckoned in the British unit of price would be exactly the same, though when reckoned in the Egyptian unit it would appear less. But it may be pointed out that the intrinsic value of a commodity is not lessened by using a smaller number to express it. Otherwise the value of every

article in Egypt might be multiplied ten times by reckoning in milliemes in place of piastres. A mile is the same length whether expressed as 5280 feet or as 1760 yards, although the former conveys an impression of grander magnitude.

The adoption of the policy here advocated would do away with all the competition of land to be placed under cotton in place of cereals. In fact, since there is a shortage of wheat, as compared with other commodities, the price of wheat would rise slightly as compared with them, and thereby stimulate supply, and more land would be placed under wheat. All difficulties of want of balance between meat supply and fodder supply would be lessened, because prices would return to nearly normal, i.e. pre-war condtions. The present half-hearted enforcement of a tinkered tariff would be necessary.

Finally, the present discontent of the earners of fixed salaries would almost ehtirely disappear and the greater discontent of the still larger body of agriculturalists, the impends with the ebb of prosperity, would be averted.

But if this or some similar policy is not adopted, serious trouble, beyond the power of Government to control lies ahead, not only during the war but in the years after it.

(Signed) J.I. Craig,
August 31, 1917

Postcript. (1) As the last pages are being typed, information has been received that India has found herself to depart from the fixed exchange, and to establish the rate 1s.5d. paid in England for the rupee paid in India. This is a change of 6 1/4 per cent, which is rather under the 7.9 per cent adopted in calculation by the writer, but the lowering coinincides with a considerable rise in the success of antisubmarine tactics and a corresponding fall in the war-risk insurance. (Economist, No 3862, September, 1917)

(2) For the sake of brevity the argument has been confined to the case of Egypt trading with England, but obviously it may be extended to other foreign countries than the latter.

Movement of retail prices of food in various countries as compared with the period preceding the war.

	Egypt	U.K.	Italy	Norway	Sweden	Denmark	Switzerland	Germany (Berlin)	Austria (Vienna)	Australia	New Zealand	Canada	U.S.A.	India
1914.														
June.....	-	-	-	100	100	100	100	-	-	-	-	-	-	-
July.....	100	100	100	-	-	-	-	100	100	100	100	100	100	100
August....	106	116	95	-	-	-	-	113	102	-	-	-	-	104
September.	104	110	102	-	-	-	-	110	99	-	-	-	-	100
October...	103	112	-	-	-	-	-	116	104	-	-	-	-	102
November..	105	113	105	-	-	-	-	121	108	-	-	107	-	99
December..	99	116	-	-	-	110	-	126	118	-	-	-	98	102
1915.														
January...	96	118	-	119	-	-	-	131	121	-	-	-	97	106
February..	99	122	-	122	114	-	-	143	133	106	-	-	98	108
March.....	102	124	-	123	-	-	-	150	143	-	-	-	95	104
April.....	102	124	-	124	-	-	-	156	166	-	-	-	96	103
May.....	100	126	-	125	-	-	-	165	176	-	-	-	97	106
June.....	99	132	114	126	-	-	-	165	178	124	-	-	98	107
July.....	99	133	122	-	-	128	-	170	179	131	-	-	99	108
August....	101	134	125	-	-	-	-	175	186	139	116	-	-	109
September.	104	135	126	-	-	-	120	178	196	133	-	-	-	110
October...	106	140	128	124	-	132	-	193	217	133	-	105	-	110
November..	109	141	129	-	-	-	-	182	220	130	-	108	100	112
December..	114	144	131	-	-	-	126	183	213	129	-	110	101	112
1916.														
January...	117	145	133	140	-	-	-	188	-	129	115	111	101	120
February..	119	147	133	132	-	133	-	186	210	136	116	113	103	117
March.....	118	148	133	-	-	-	129	200	210	134	116	113	104	118
April.....	118	149	132	-	-	-	-	220	222	131	-	112	106	118
May.....	115	155	134	-	-	-	-	216	228	131	119	113	106	123
June.....	112	159	133	161	139	-	140	217	249	130	119	115	108	121
July.....	116	161	132	-	-	146	-	218	-	-	119	114	108	-
August....	118	160	132	168	-	-	-	216	278	128	120	116	111	-
September.	124	165	132	-	-	-	144	220	-	126	118	121	115	-
October...	132	168	132	161	-	-	-	209	-	125	120	125	118	-
November..	137	178	133	-	-	-	-	210	277	126	123	135	123	-
December..	139	184	137	161	-	-	148	-	267	125	125	136	123	-
1917.														
January...	137	187	144	-	-	-	-	-	272	125	127	138	124	-
February..	142	189	154	-	166	158	-	-	-	126	126	141	130	-
March.....	142	191	-	162	170	-	158	-	-	-	126	144	130	-
April.....	143	194	164	-	175	-	-	-	275	-	-	-	141	-
May.....	149	198	-	-	-	-	-	-	288	-	-	159	-	-
June.....	152	202	-	-	-	-	-	-	-	-	-	160	-	-
July.....	161	204	-	-	-	-	-	-	-	-	-	-	-	-
August....	167	202	-	-	-	-	-	-	-	-	-	-	-	-

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Those books marked with an asterisk have been found particularly useful.

S.a.

102.

PUBLICITY.